Thermanit TG 309 L

Flux cored wire, high-alloyed, rutile

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22	Mat. No.
T 23 12 L R M21 3 T 23 12 L R C1 3	TS309L-FB0	E309LT0-4 E309LT0-1	1.4332

Characteristics and typical fields of application

Thermanit TG 309 L is an austenitic CrNi flux cored wire with rutile slag characteristic. It is suited for GMAW welding with mixed gas M21 and C1 acc. to EN ISO 14175.

For joint welding of high-alloyed CrNi(Mo, N) steels/cast steel grades with unalloyed/low alloyed steels (austenite ferrite joints) with a maximum application temperature of 300 °C (572 °F). It is also suited for joint welding of high alloyed CrNi(Mo, N) steels/cast steel grades with stainless and heat-resistant Cr steels/cast steel grades.

For intermediate layers when welding the clad side of plates and cast materials clad with non stabilized and stabilized CrNi(Mo, N) austenitic metal. The weld metal is stainless (wet corrosion up to 350 °C (662 °F)).

Weldable almost spatter-free and due to the very slow freezing slag the weld metal shows fine and smooth bead appearance. Very good slag detachability and notch free seams with low annealing colouring, easy to clean and pickle. Root welding is proven on ceramic backing strips.

Base materials

Joints and mixed joints between austenitic steels like:

1.4301 – X5CrNi18-10	1.4541 – X6CrNiTi18-10
1.4306 – X2CrNi19-11	1.4550 – X6CrNiNb18-10
1.4308 – GX5CrNi19-10	1.4552 – GX5CrNiNb19-11
1.4401 – X5CrNiMo17-12-2	1.4571 – X6CrNiMoTi17-12-2
1.4404 – X2CrNiMo17-12-2	1.4580 – X6CrNiMoNb17-12-2
1.4408 – GX5CrNiMo19-11-2	1.4581 – GX5CrNiMoNb19-11-2
1.4435 – X2CrNiMo18-14-3	1.4583 – X10CrNiMoNb18-12
1.4436 – X3CrNiMo17-13-3	1.4948 – X6CrNi18-10

or mixed joints between austenitic and heat resistant steels

1.4713 – X10CrAlSi7	1.4828 – X15CrNiSi20-12
1.4724 – X10CrAlSi13	1.4832 – GX25CrNiSi20-14
1.4742 – X10CrAlSi18	1.4837 – GX40CrNiSi25-12
1.4826 – GX40CrNiSi22-10	

with ferritic steels to pressure boiler steels P295GH and also fine grained structural steels to P355N, shipbuilding steels grade A - E, AH 32 - EH 36, A40 – F40.

Typical analysis of all-weld metal (wt.-%)

	C	Si	Mn	Cr	Ni	Gas
wt-%	0.03	0.7	1.4	23.0	12.5	M21

Structure: Austenite with part ferrite

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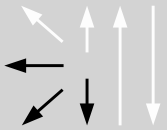
Mechanical properties of all-weld metal							
Heat-treat-ment	Shielding gas	Yield strength $R_{p0.2}$	Yield strength $R_{p1.0}$	Tensile strength R_m	Elongation A (L_0=5d_0)	Impact work ISO-V KV J	
		MPa	MPa	MPa	%	+20 °C	–60 °C
aw	M21	350	400	520	30	47	32

Operating data						
	**Polarity:**	**Shielding gas:**	**ø (mm)**	**Spool**	**Amps A**	**Voltage V**
	DC (+)	(EN ISO 14175) M21, C1 Consumption: 15 – 20 l/min	0.9 1.2 1.6	B300 B300 B300	100 – 180 120 – 280 200 – 350	18 – 29 20 – 30 22 – 32

Approvals
TÜV (07540), DB (43.132.14) GL, CE